

Type: **M1-ESD** Metrology Probe with anti-ESD coating

### **Multipurpose High Aspect Ratio EBD probe. Highly doped to dissipate static charge.**

The **nanotools® M1-ESD\_NCH\_13** tip is designed for non-contact / high frequency mode, in particular for automated AFM systems for in-line process control as well as general purpose AFM. Its special anti-ESD coating delivers metallic conductivity of the probe without weakening its mechanical strength. For most applications the conductivity of the standard probe (either EBD or highly doped silicon) is sufficient to dissipate static charge – an electric discharge would immediately destroy the tip. However, some applications such as scanning ceramics or photomasks require an even higher level of ESD precautions. Here the **nanotools® M1-ESD\_NCH\_13** is the choice.

Key features are excellent lifetime and reliability for high aspect ratio applications, where charging of the sample is an issue.

### **EBD Material**

The high aspect ratio part of the probe is made from HIGH-DENSITY, DIAMOND LIKE CARBON (**HDC/DLC**). The tips show superior properties, such as high aspect ratio, hydrophobic surface properties, high stiffness / elastic modulus (8x of that of silicon), low thermal mass as well as abrasion resistance.

This leads to probes offering the extreme durability of diamond together with high resolution imaging capability. Applying our patented EBD (electron beam deposition) technique we ensure a stiff and rigid high aspect ratio probe of superior symmetry and nanometer precision.

### **Technical Data**

Tip dimensions	Shape:	conical
	Length:	800 nm +/- 200 nm
	Diameter:	75 nm +/- 10 nm
	Tip radius:	< 10 nm, typically 5 nm
	Tilt compensation:	13 deg +/- 1 deg

Cantilever	t: 4 µm	l: 125 µm	w: 30 µm
		f: 320 kHz	k: 42 N/m

Coating	Tip side: very thin Al
	Back side: none



### **First in Quality**

A 100 % quality check by SEM for every tip, high scan speeds, flexibility in combination with stiffness, 13 deg tilt compensation and optimized cost per scan are key parameters. The **M1-ESD\_NCH\_13** is used by leading fabs worldwide for several AFM in-line monitoring tasks such as depth control or STI.

Datasheet for every tip with precise tip dimensions provided.

nanotools is the first probe manufacturer being quality certified to ISO 9001.

